# Service Manual



# 8-TRACK STEREO CARTRIDGE TAPE DECK

Original



RS-845US MECHANISM SERIES

# MODEL RS-806US

#### **SPECIFICATIONS**

Power Source:

AC: 90~109, 110~125, 200~219,

220~250 volts; 50/60 Hz

Power Consumption:

20 W

Motor:

Electronic governor motor

Transistors:

2SB346(4) 2SB348(2) 2SA101C(v)(2) 2SB172A(1)

2SB175B(1)

2SC1096(1)

2SB324(1)

OA90Z(2) 1S1211(3) FR202(1)

S0501(2) KC2DP22/1(2)

Track System:

Diodes & Rectifiers:

8-track stereo system

Recording System:

AC bias 35 kHz

Erasing System:

AC erase

Tape Speed:

3-3/4 ips.

Fast Forward Time:

Approx. 100 seconds with 100 feet

Rewind Time:

Approx. 100 seconds with 100 feet

tape

Frequency Response:

50~15,000 Hz

Inputs:

2 "MIC"

2 "LINE IN"

"HEADPHONE"

-74 dB 200~600Ω 100 kΩ  $-26 \, \mathrm{dB}$ 

2 "LINE OUT" -2 dB 6.8 kΩ 80

Program Time:

One hour with 300 feet tape

Dimentions:

 $16-5/8''(W) \times 4-1/8''(H) \times 9-1/4''(D)$ 

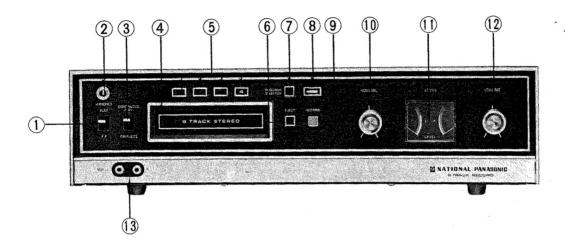
Weight:

Outputs:

12-1/8 lbs.

These specifications are subject to change in order to accommodate improvements in design.

# **LOCATION OF PARTS**



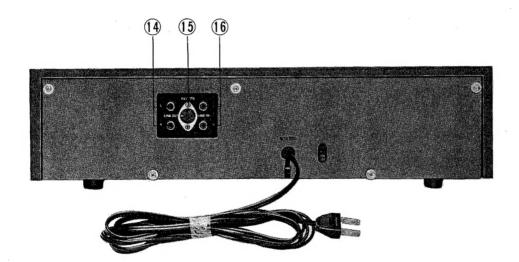


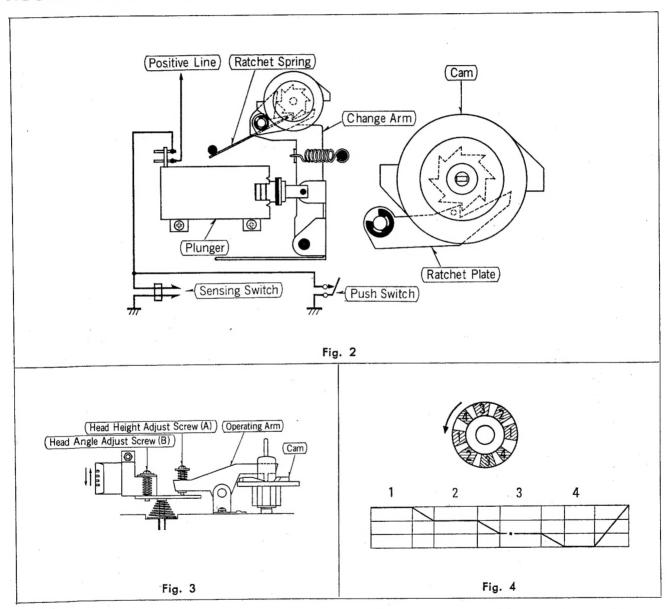
Fig. 1

- ① PLAY/FF selector
- ② Headphone jack
- 3 Automatic ejection switch
- Tape slot
- ⑤ Program indicator
- 6 Ejection button
- Program selector
- Recording indicator

- Record button
- 10 Volume control (LEFT)
- 1 Level meter
- ② Volume control (RIGHT)
- Microphone jacks
- Line output jacks
- 15 Record/playback connector socket
- 16 Line input jacks

# **MECHANICAL ADJUSTMENTS**

# PROGRAM SELECTION



# Manual Selection

- 1. When the push switch is pressed, the plunger is made to function.
- 2. The plunger pulls the change arm to left and the change arm returns back to former position (right side) immediately.
- 3. Change arm moves the ratchet plate to turn the cam when it returns to right.
- 4. As the cam rotates, the head is moved, being kept horizontally, up and down perpendicularly through the operating arm. The programs can then be selected.

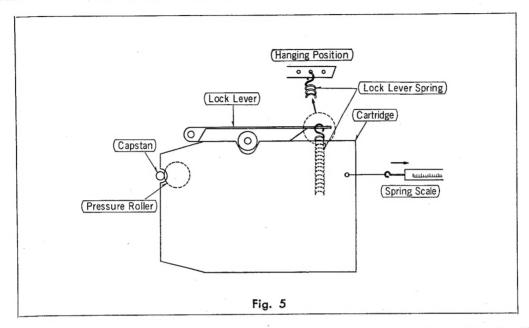
The convex portion of the operating arm hits upon the surfaces of 1, 2, 3 and 4 shown in the figure.

For instance, when it hist upon the surface of 4, the head is placed in the topmost position and the head slits comes to tracks 1 and 5.

#### Automatic Selection

If the sensing foils is attached to the cartridge tape, the plunger functions when the sensing contacts are closed by the sensing foil, thereby selecting a program can be made automatically.

# PRESSURE OF PRESSURE ROLLER



Instrument required: Standard cartridge for measuring

pressure of pressure roller, spring

scale.

Refer to fig. 5. Measuring figure:

Measuring method: Insert the standard cartridge in the

tape player, and take the measure-

ment by pulling it with the spring

scale as shown in fig. 5.

Standard value:

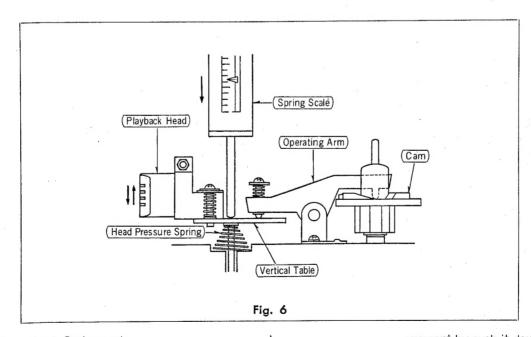
 $1450 \pm 100 \text{ gr.}$ 

Adjustment:

Make adjustment with the Lock

lever spring. Change hanging po-

sition of lock-lever.



Instrument required: Spring scale.

Measuring figure:

Refer to fig. 6.

Measuring method: Place the set into the mode of

program 1, and make the meas-

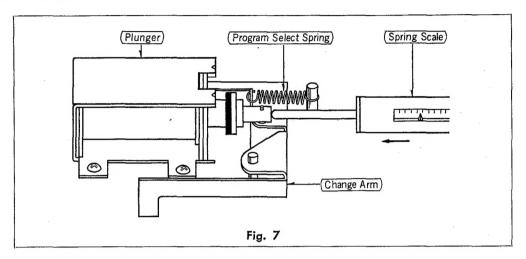
urement by push it downward with

the spring scale as shown in fig. 6.

Standard value:

 $180 \pm 20 \, gr.$ 

# **PLUNGER LOAD**



Instrument required: Spring scale.

Measuring figure:

Refer to fig. 7.

Measuring method: Apply the spring scale as shown in

fig. 7, push in the plunger, and measure the maximum value at the end point.

Standard value:

215±20 gr.

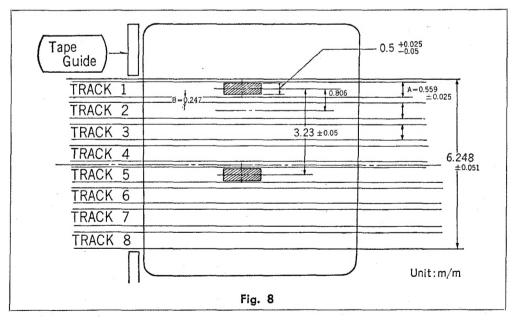
Adjustment:

Make the adjustment by using the

program select spring.

# AMPLIFIER ADJUSTMENTS

# **HEAD HEIGHT POSITION CONTROL AND ANGLE ADJUSTMENT**

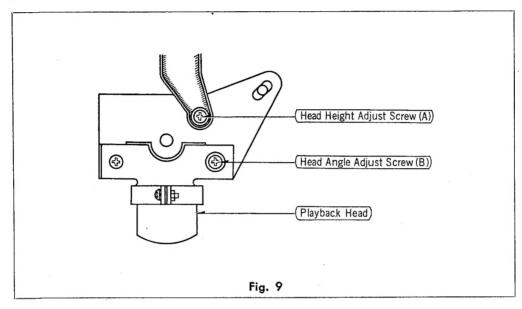


Instrument required: VTVM (2 units) Angle adjustment standard tape (VTT809 or #326 made by RCA).

Height position control tape

VTT801 or #321 made by RCA). Crosstalk adjustment standard tape (VTT804 or #328 made by RCA).

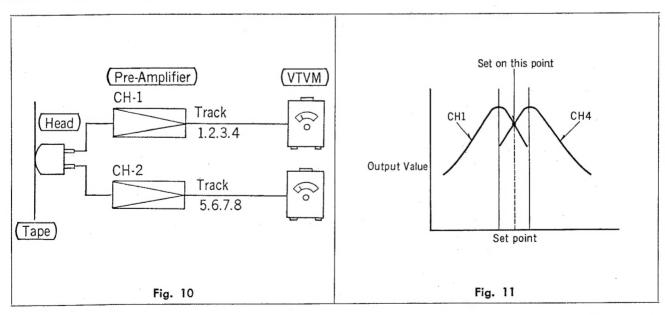
## HEAD POSITION CONTROL



- 1. Place the set into the mode of program 1.
- 2. Make an adjustment with the unaided eye by using the adjustment screw (A) shown in fig. 9, so that

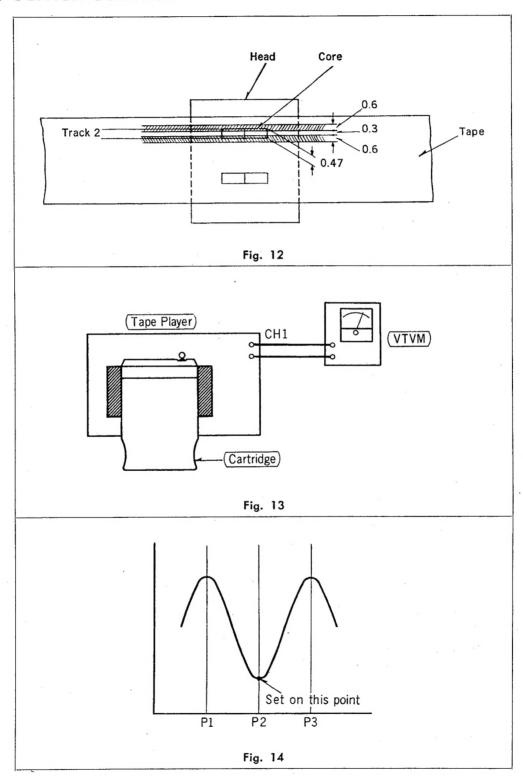
the tape width and the head position becomes as shown in fig. 8.

## ANGLE ADJUSTMENT



- 1. Place the set into the mode of program 1, and playback the angle adjustment standard tape.
- 2. Connect 2 VTVMs to the line outputs of CH1 and CH2 so that both output values can be measured as shown in fig. 10.
- 3. Adjust the head angle adjust screw (B) shown in fig. 3 so that both output values become maximum simultaneously.
- 4. When the both values are not maximum on the same point, set it on the point where the both values are equal as shown in fig. 11.

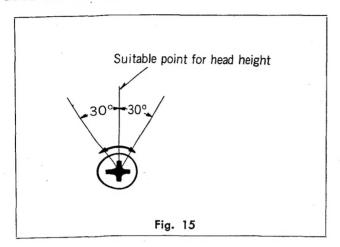
# HEIGHT POSITION CONTROL



The tape has two 1 kHz signals with opposite phase recorded above and below track 2 as shown in fig. 12.

- 1. Place the set to the program 2.
- 2. Connect the VTVM to the output of CH1 as shown in fig. 13.
- 3. Playback the height position control tape.
- When turn the head height adjust screw (A) in fig. 3, comfirm that the output varies as maximum → minimum → maximum as shown in fig. 14.
- 5. Set the adjust screw (A) at the minimum point.

# CROSSTALK

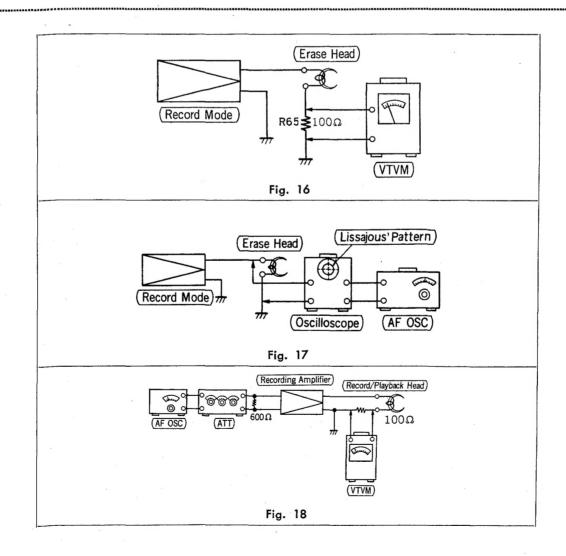


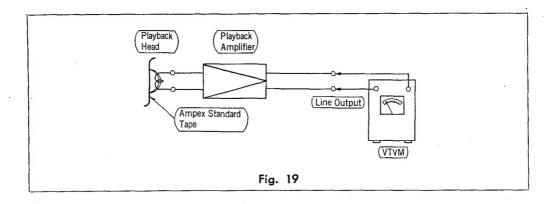
 Measure the crosstalk between the adjacent tracks by playback the crosstalk adjustment tape.
 As for the crosstalk adjustment tape, signals of 400 Hz are recorded on tracks 1, 3, 5 and 7 and no signal on tracks 2, 4, 6 and 8.

- 2. Connect the VTVM to output of CH1 as shown in fig. 15.
- 3. Playback the adjustment tape, change the program in turn and obtain the output ratio of the adjacent tracks.
- 4. The standard value is higher than 40 dB.
- 5. If the value is less than 40 dB, re-adjust the items height position control and angle adjustment above, and take the measurement over again.
- 6. Even if adjusted item 5 above, when the value is out of the standard, slightly adjust the head height adjust screw (A) but within 30 degrees far from the suitable point for head height as shown in fig. 15.

# TREATMENT AFTER ADJUSTMENT

Paint-lock the adjustment screw (A) and (B).





Measurement condition:

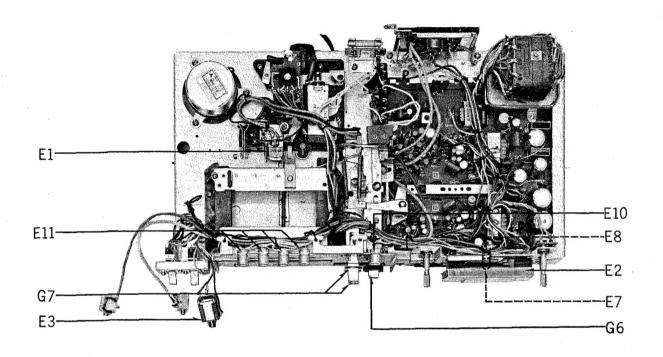
Power voltage..... AC 120 V; 50/60 Hz Võlume control ... Maximum

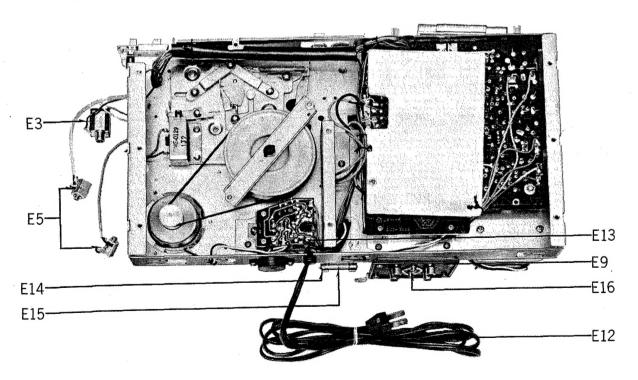
Instruments required:

VTVM, AF OSC, oscilloscope, digital counter, test tape.

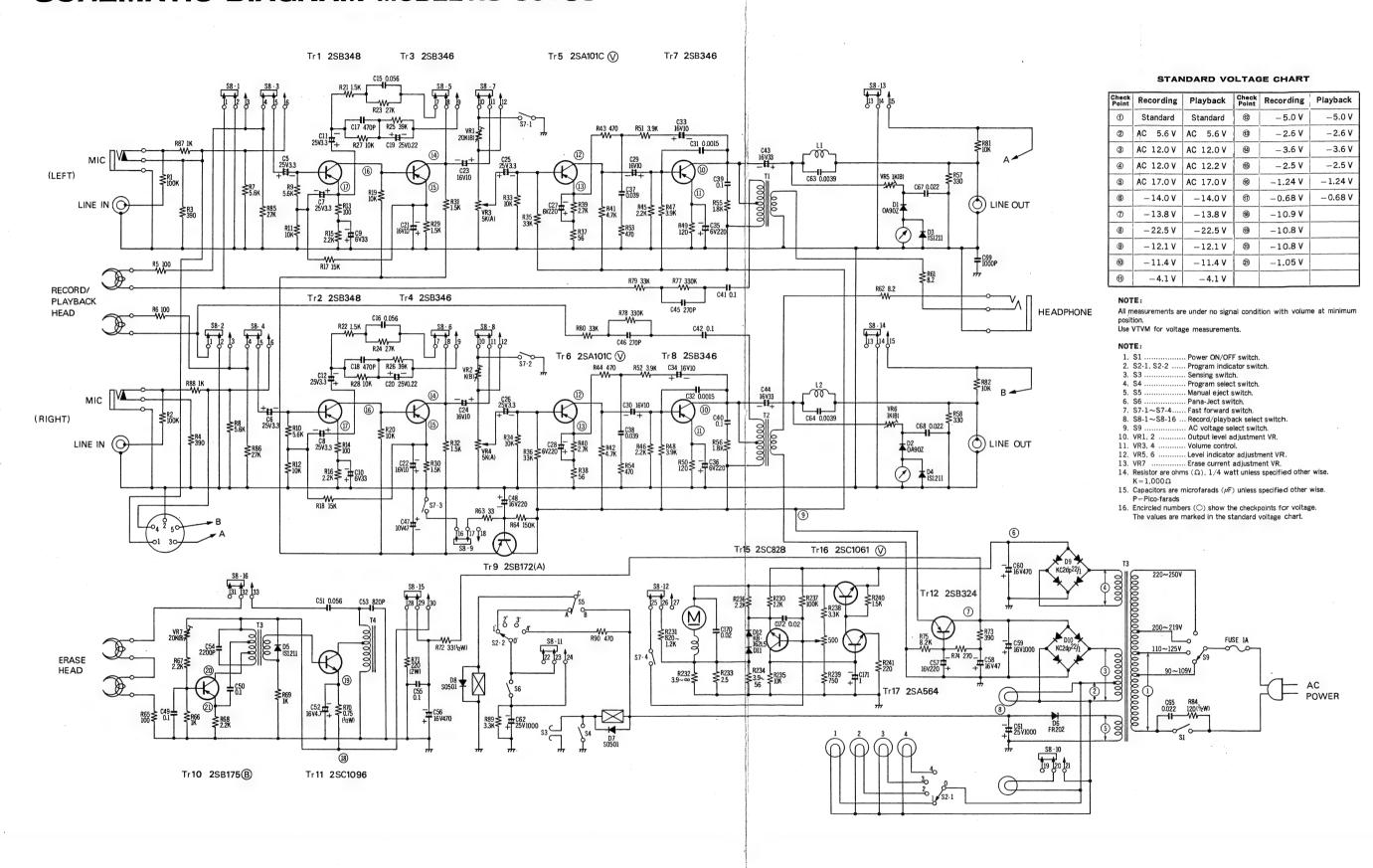
	ITEM	SIGNAL SOURCE CONNECTION	OUTPUT CONNECTION	MODE	ADJUSTMENT	SPEC.	REMARKS
1	Adjustment of erase current.		VTVM to both ends of R65, as shown in fig. 16.	Record	T3 VR7	9 mA (0.9 V on VTVM)	Adjust T3 so that current becomes maximum.     Adjust VR7 to obtain the standard current value.
2	Measurement of bias oscillation frequency.		Oscilloscope with AF OSC to both ends of erase head, as shown in fig. 17.	Record		30∼ 40 kHz	Adjust the AF OSC to obtain a circular and stationary Lissajous' Pattern on oscilloscope. The oscillation frequency is indicated by the scale of the AF OSC.
3	Measurement of recording level & adjustment of level indicator.	1 kHz -74±4 dB to MIC input jack. 1 kHz -26±4 dB to AUX input jack.	VTVM to both ends of R5 (for CH1) and R6 (for CH2), as shown in fig. 18.	Record	VR5 & VR6 for level indicator adjustment.	5 mV on VTVM; O VU on level indicator.	Stop the bias oscillation.
4	Adjustment of playback level.	Thread the test tape (400 Hz -0 dB) for SN measurement.	VTVM to line output jack, as shown in fig. 19.	Playback	VR1 (for CH1) VR2 (for CH2)	0.8 V	Test tape is #323 made by RCA. Set the volume control to maximum.

# **ELECTRICAL PARTS LOCATION**

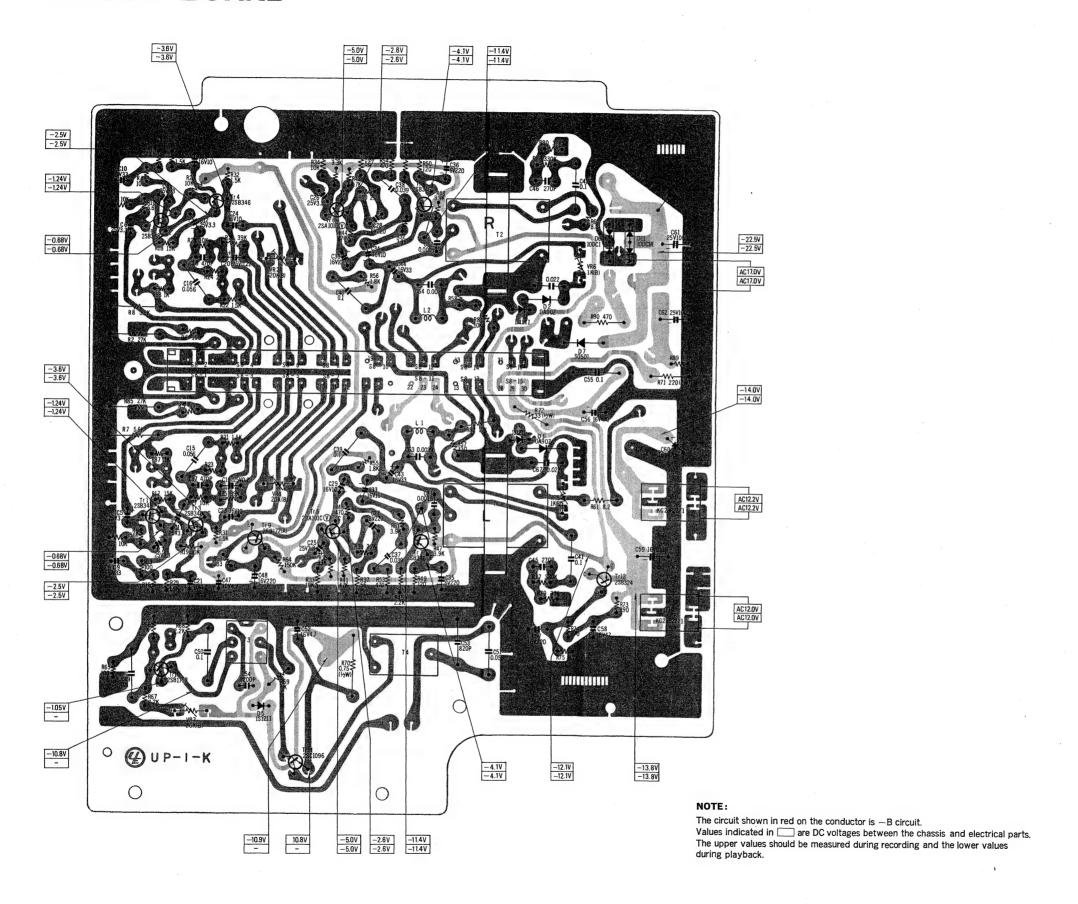




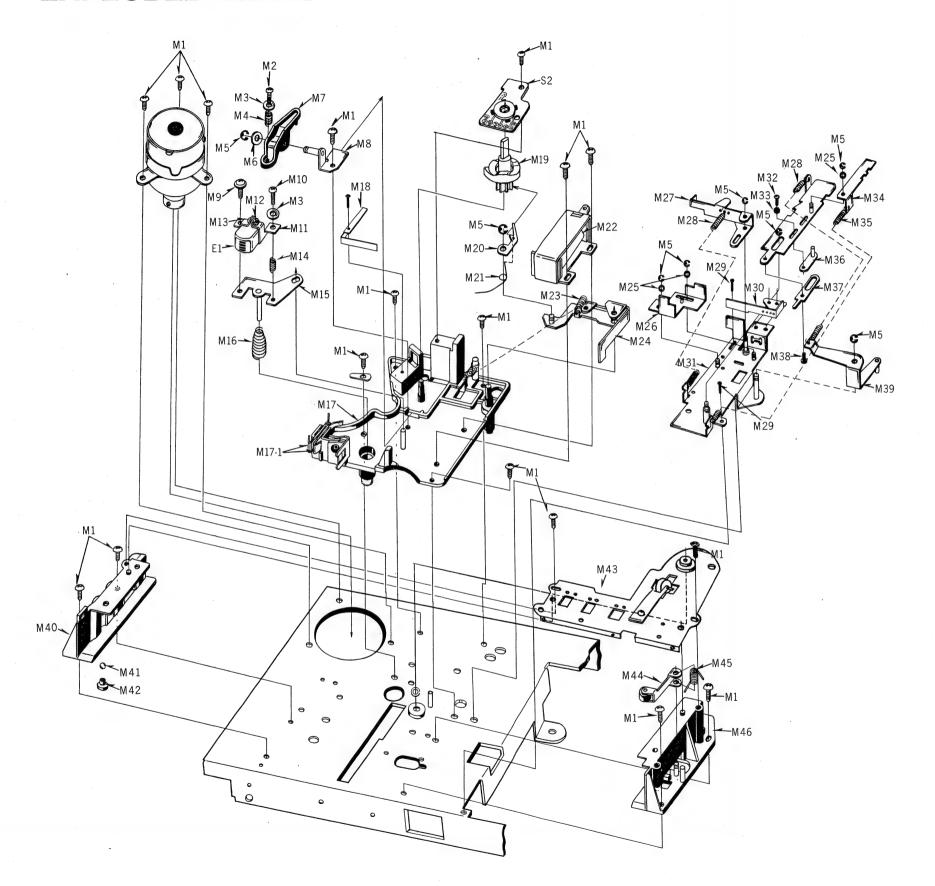
# SCHEMATIC DIAGRAM MODEL RS-806US



# **CIRCUIT BOARD**

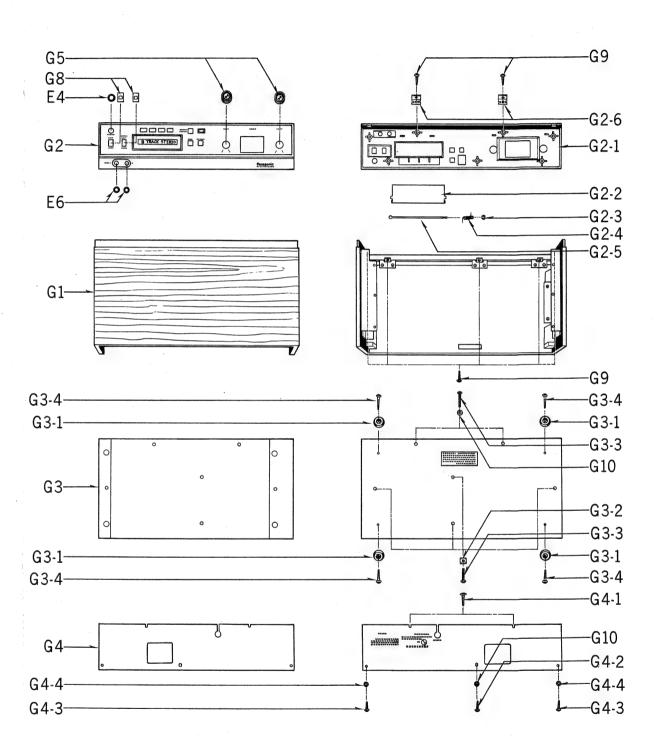


# **EXPLODED VIEWS**



# M60

# **CABINET PARTS**



# REPLACEMENT PARTS LIST

# MODEL RS-806US NATIONAL PANASONIC



RS-806US

## NOTE:

- 1. Be sure to make your orders of Replacement Parts according to this List.
- 2. "x" in "Rank" Column indicates that the part are not supplyable.
- 3. "A, B and C" in "Rank" Column indicates the recommended stock of replacement parts. Refer to the recommended stock table on last page.
- 4. "★" in "Remarks" Column indicates New Parts.
- 5. "(so" in "Remarks" Column indicates ISO Screw or Nut.

#### NOTA:

- 1. Habrá que asegurarse que los pedidos de piezas de repuesto se hagan según esta lista.
- 2. "X" marcado en la columna "Rank", quiere decir que dichas piezas no pueden ser provistas.
- 3. "A, B y C" marcadas en la columna "Rank" indican el surtido que se recomienda tener de dichas piezas de repuesto.
- 4. "★" marcado en la columna "Remarks", quiere decir que las piezas son nuevas.
- 5. "(150" marcado en la columna "Remarks", quiere decir que es un tornillo o tuerca "ISO".

# NOTE:

- 1. Bien s'assurer de se conformer à la liste suivante pour les commandes de pièces de rechange.
- 2. "x", dans la colonne "Rank", indique qu'il n'est pas possible de fournir ces pièces.
- 3. "A, B et C", dans la colonne "Rank", indiquent le stock recommandé de pièces de rechange. Se reporter en dernière page au tableau des stocks/recommandés.
- 4. "★", dans la colonne "Remarks", indique les pièces nouvelles.
- 5. "(Iso", dans la colonne "Remarks", indique une vis ou un écrou ISO.

#### HINWEIS:

- 1. Bestellen Sie Ihre Ersatzteile genau nach dieser Liste.
- 2. Mit "X" in der "Rank" Spalte aufgeführte Teile können nicht geliefert werden.
- 3. "A, B und C" in der "Rank" Spalte zeigt Ihnen den Vorrat der Ersatzteile an.
- 4. "★" in der "Remarks" Spalte bedeutet "neue Teile".
- 5. "(ISO)" in der "Remarks" Spalte bedeutet ISO-Schraube oder Mutter.

#### 按:

- 1. 關於代用零件之訂購, 務請依照此表而行之爲荷。
- 2. 「等級」(Rank) 一欄中之"×"標記表示該零件無從供應。
- 3. 「等級」(Rank) 一欄中之"**A**, **B**, **C**"標記表示該零件有存貨, 值得介紹。 請參照最後一頁的「值得介紹存貨表」。
- 4. 「備考」(Remarks) 一欄中之"★"形符號標記表示該零件爲新出品。
- 5. 「備考」(Remarks) 一欄中之 "(豆)"符號標記表示國際標準化機構(ISO) 式螺絲或螺母。

Rank	5 ( 1)		D. I. N.	Pcs/	Price (Per Pce.)	
Rank	Ref. No.	Description	Part No.	Set		Remarks
		MECHANICAL PARTS				
C	M1	Tapping Screw ⊕3×8	XTB3+8B	17		COMMON
С	M2	Adjust Screw	QHQ1088	1		RS-803US, 845US
С	МЗ	Flat Washer 3∳	XWG3	2		COMMON
В	M4	Head Height Adjust Spring	QBC1167	1		RS-845US
С	M5	Stop Ring E3¢	XUC3FT	14		COMMON
С	M6	Fiber Washer 4.2×9×0.5	QBK7005	4		COMMON
С	M7	Operating Arm	QML2058	1		RS-845US
×	M8	Operating Arm Retainer Unit	QXH0115	1		"
С	М9	Sems Screw ⊕3×6	XYN3+C6S	1		COMMON (ISO
С	M10	Screw ⊕3×10	XSN3+10S	1		" (ISO
C	M11	Head Holding Angle	QMH1184	1		RS-845US
С	M12	Nut 2.6¢	XNG26G	1		COMMON
С	M13	Screw ⊕2.6×8	XSN26+8	1		22
С	M14	Head Angle Adjust Spring	QBC1166	1		RS-845US
В	M15	Vertical Table Unit	QXH0113	1		"
С	M16	Head Pressure Spring	QBC1168	1		RS-845US
×	M17	Head Base Plate Assembly with S3	QXK1302	1		*
С	M17-1	Sensing Plate	QMH1198	2		RS-845US
С	M18	Stop Spring	QBP1400	1		>>
В	M19	Cam	QMF1486	1		RS-804US
C	M20	Ratchet Plate	QMF1436	1		RS-845US
C	M21	Ratchet Spring	QBN1249	1		"
B	M22	Plunger	QME0130	1		,,
C	M23	Program Select Spring	QBT1518M	1		99
В	M24	Change Arm Unit	QXL0520	1		"
С	M25	Fiber Washer 4.2×9×0.25	QBK7007	4		COMMON
c	M26	Sub Record Lock Plate Unit	QXL0545	1		*
C	M27	Lock Release Lever	QML2239	1		*

				Pcs/_	Price (Per Pce.)	
Rank	Ref. No.	Description	Part No.	Set		Remarks
С	M28	Switch Operate Spring	QBT1572M	2		*
С	M29	Tapping Screw ⊕3×6	XTN3+6F	4		COMMON
						·
С	M30	Actuater	QBP1056	1		*
C	M31	Record Angle Unit	QXE0150	1		*
C	M32.	Screw ⊕3×6	XSN3+6FKS	1		COMMON (ISO)
С	м33	Lock Washer 3¢	XWC3B	1		"
С	M34	Record Safety Metal	QML2238	1		*
	Mas	Lock Release Spring	QBT1571M	1		
C	M35	Record Adjust Plate Unit	QXL0544			*
C	M36			1		*
С	M37	Record Lever-B	QML2246	1	· · ·	*
С	M38	Screw	XSNQ0004S	1	-	RS-840S (ISO
С	M39	Record Operate Lever Unit	QXL0546	1		*
С	M40	Cartridge Guide-L	QMH1151	1		RS-845US
В	M41	Steel Ball 9/32"	QDK1010	1		"
C	M42	Steel Ball Chock	QBJ1721	1		"
С	M43	Reinforcement Plate Unit	QXH0126S	1		* (ISO)
С	M44	Eject Safety Lever Unit	QXL0475 .	1		RS-845US
	MAE	Eject Safety Spring	QBN1220	1		RS-845US
C	M45			1		no-04505
×	M46	Cartridge Guide-R	QMH1152 QDP1415	1		<del></del>
В	M47	Motor Pulley				*
B	M48	Motor Pulley Set Screw  Motor	QDM1340A	1		*
	IVIAS	Motor	QBM1040//		,	
С	M50	Plunger	QME0129	1		RS-840S
×	M51	Lock Release Lever	QML2050	1		RS-845US
С	M52	Eject Spring	QBN1177	1		,,
С	M53	Toggle Plate-C	QMF1435	1		"
×	M54	Right Toggle Plate	QMF1432	1		"
	1155	Loft Torris Dist	01451422			DC 045UC
×	M55	Left Toggle Plate  Lock Arm Unit	QMF1433 QXH0116	1		RS-845US

					David Na	Pcs/F	Price (Per Pce.)	Down sult-
Rank	Ref. No.	Descri	ption		Part No.	Set		Remarks
С	M57	Sems Screw ⊕3×4	1		XYN3+C4S	3		COMMON
c	M58	Eject Plate Unit		-	QXH0114	1		RS-804US
С	M59	Return Spring			QBT1576M	1		RS-845US
С	M60	Toggle Plate Unit		3	QXL0519	1		RS-845US
С	M61	Sems Screw ⊕2.6	×6		XYN26+C6	2		COMMON
C	M62	Flat Washer 2.6¢			XWG26	2		"
×	M63	Flywheel Retainer	Unit		QXH0127	1		*
A	M64	Flywheel Belt			QDB0135	1		RS-800US, 803US
A	M65	Flywheel Assembly			QXF0081	1		*
С	M66	Fiber Washer 6.2×	11×0.25		QBK7003	1		COMMON
С	M67	Fiber Washer 6.2×	11×0.5		QBK7056	1		* **
С	M68	Lock Lever Unit			QXL0474	1		RS-845US
С	M69	Lock Lever Spring			QBT1292M	1		,,
С	M70	Oil Prevent Washe			QBG1351	1		*
В	R1, 2	RESIS  Carbon Resistor	100 KΩ	1/4 W	ERD14TJ104	2		
В	R3, 4	,,	390Ω		ERD14TJ391	2		
В	R5, 6, 65	***	100Ω		ERD14TJ101	3		
В	R7, 8	"	5.6 ΚΩ	,	ERD14TJ562	2		
В	R9, 10	"	5.6 ΚΩ		ERD14VJ562	2		
В	R11 12 19 20	, 27, 28, 33, 34, 81,	82					
	11,22,22,22,	Carbon Resistor	10 ΚΩ	1/4 W	ERD14VJ103	10		
В	R13, 14	**	100Ω	1/4 W	ERD14VJ101	2		
В	R15, 16, 45, 46,	"	2.2 ΚΩ	1/4 W	ERD14VJ222	6		
В	67,68 R17, 18	,,	15 ΚΩ	1/4 W	ERD14VJ153	2		
В	R21, 22, 29, 30, 31, 32	Carbon Resistor	1.5 ΚΩ	1/4 W	ERD14VJ152	6		
В	R23, 24	Carbon Resistor	27 ΚΩ	1-/4 W	ERD14VJ273	2		
В	R25, 26	,,	39 ΚΩ	1/4 W	ERD14VJ393	2		
В	R35, 36, 79, 80	,,	33 ΚΩ	1/4 W	ERD14VJ333	4		

					Pcs/	Price (Per Pce.)		D	
Rank	Ref. No.	Descri	ption	2'	Part No.	Set			Remarks
В	R37, 38	Carbon Resistor	56Ω	1/4 W	ERD14VJ560	2			
В	R39, 40	"	2.7 ΚΩ	1/4 W	ERD14VJ272	2			
							* *		
В	R41, 42	Carbon Resistor	4.7 ΚΩ	1/4 W	ERD14VJ472	2			
В	R43, 44, 53, 54, 90	<b>59</b>	470Ω	1/4 W	ERD14VJ471	5			
В	R47, 48, 51, 52	>>	3.9 ΚΩ	1/4 W	ERD14VJ392	4			
В	R49, 50	22	120Ω	1/4 W	ERD14VJ121	2			
В	R55, 56	>>	1.8ΚΩ	1/4 W	ERD14VJ182	2			
В	R57, 58	Carbon Resistor	330Ω	1/4 W	ERD14VJ331	2			
В	R61, 62	**	8.2Ω	1/4 W	ERD14VJ8R2	2			
В	R63	,,	33Ω	1/4 W	ERD14VJ330	1			
В	R64	>>	150 ΚΩ	1/4 W	ERD14VJ154	1			
В	R66, 69,87,88	>>	1ΚΩ	1/4 W	ERD14VJ102	2			
		·							
В	R70	Wire-wound Resisto	r 0.75Ω	1/2 W	ERM12PJR75	1			
В	R71	27	220Ω	2 W	ERM2P221	1			
В	R72	Solid Resistor	33Ω	1/2 W	ERC12GM330	1			
В	R73	Carbon Resistor	390Ω	1/4 W	ERD14VJ391	1			
В	R74	>>	270Ω	1/4 W	ERD14VJ271	1			
В	R75	Carbon Resistor	8.2 ΚΩ	1/4 W	ERD14VJ822	1			
В	R77, 78	**	330 ΚΩ	1/4 W	ERD14VJ334	2			
В	R84	Solid Resistor	120Ω	1/2 W	ERC12GM121	1			
В	R85, 86	Carbon Resistor	27 ΚΩ	1/4 W	ERD14TJ273	2			
В	R89	,,	3.3 KΩ	1/4 W	ERD14VJ332	1			
		VARIABLE R	ESIST	ORS					
A	VR1, 2, 7	Semi-fixed Variable	Resistor 201	KΩ (B)	EVLT0AA00B24	3			RS-280S
A	VR3, 4	Variable Resistor		KΩ (A)	EVCB0AL35A53	2			*
A	VR5, 6	Semi-fixed Variable	Resistor 1 I	KΩ (B)	EVLT0AA00B13	2			RS-803US
		CAPACI	TORS						
В	C5, 6, 7, 8, 11, 12, 25, 26	Electrolytic Capacito	or 25 V	3.3 <i>µ</i> F	ECEA25V3R3L	8			
В	C9, 10	2)	6 V	33μF	ECEA6V33L	2			

		B. Luis	Doub No.	Pcs/ Price (Per Pce.)	Downsyles
Rank	Ref. No.	Description	Part No.	Set	Remarks
С	E4	Headphone Jack Nut	QNQ1033	1	COMMON
A	E5	M3 Jack	QJA0115	2	,,
С	E6	M3 Jack Nut	QNQ1037	2	СОММОН
A	E7	Pilot Lamp	XAM30TW	1	"
C	E8	Pilot Lamp Socket	QJS0121	1	,,
С	E9	Jack Board Assembly	QEJ0210	1	*
A	E10	Record Indication Lamp	XAMQ11P200	1	*
A	E11	Indication Lamp	XAMQ11P300	4	*
В	E12	AC Cord	QFC1041	1	COMMON
С	E13	Cord Bushing	QTD1126A	1	,,
C	E14	Fuse Holder Unit	QEQ1174	1	*
A	E15	Fuse 1A	XBA1E10NR3	1	COMMON
В	E16	5 P DIN Socket	QJS0723	1	RS-735US, 768US,820S
		CABINET PARTS			
В	G1	Body Case Assembly	QYJ1276	1	*
В	G2	Panel Assembly	QYP0326S	.1	* (150
C	G2-1	Front Panel Assembly	QYP0347	1	*
В	G2-2	Cartridge Lid	QKF1422	1	RS-845US
С	G2-3	Stop Ring E1.5∳	XUC15FT	1	COMMON
В	G2-4	Lid Spring	QBN1197	1	RS-804US
C	G2-5	Rod	QMR1075	1	RS-845US
C	G2-6.	Panel Metal-B	QKT1445S	2	*
C	G3	Bottom Board	QKU1135	1	*
C	G3-1	Rubber Foot	QKA1030A	4	RS-803US
		,			
C	G3-2	Washer .	QWQ1083	4	COMMON
С	G3-3	Screw ⊕4×16	XSN4+16RS	6	" (Iso
С	G3-4	9)	XMM35+15	4	"
С	G4	Back Board	QKU1173	1.	*
С	G4-1	Screw	QHQ1094	2	RS-806US

Danile	D.C. N.	Description	DI-N-	Pcs/_	Price (Per Pce.)	
Rank	Ref. No.	Description	Part No.	Set		Remarks
С	G4-2	Screw ⊕3×8	XSN3+8S	1		COMMON (ISO
С	G4-3	Screw ⊕3.1×10	XMM31+10	2		"
С	G4-4	Washer	XWG3	2		"
A	G5	Volume Knob Assembly	QGT3037	2		*
A	G6	Record Button Assembly	QXB0118A	1		*
A	G7	Button Assembly	QXB0117A	2		*
С	G8	Spacer	QBJ1489	2		*
С	G9	Tapping Screw ⊕3×8	XTM3+8	. 7		COMMON
С	G10	Washer	QWQ1003	3		,,
		ACCESSORIES				
Α	A1	Connection Cord-G	QEB0060P	2		RS-845US
Α	A2	Head Cleaning Bar	QFQ1025	1		,,
Α	А3	Cartridge tape	QFT80GNRA1	1		RS-804US
Α	A4	Plug Adaptor	QJP0603S	1		COMMON (ISO
A	A5	Instruction Book	QQT1677	1		*
		PACKINGS				
С	P1	Inside Carton	QPN2651	1		*
С	P2	Inner Cushion	QPN2569	2		*
С	P3	Accessory Bag	QFV0047	1		RS-845US
С	P4	Dust Cover	XZB60X50A05	1		RS-813S

# RECOMMENDED STOCK OF REPLACEMENT PARTS

Rank of Part	Estimated Selling Q'ty of Tape Recorder Set							
Rank of Part	Less 50 than	100	300	500	1,000	2,000		
A rank Parts	2	5	15	20	40	80		
B rank Parts	1	2	5	10	20	40		
C rank Parts	0	1	3	5	10	20		